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Abstract

URANIUM DEPOSITS IN TERTIARY VOLCANITES OF NORTH-EASTERN MACEDONIA

by

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In the volcanic area of Kratovo and Zletovo /NE Macedonia/, already known for the rich lead-zinc deposits, the important uranium deposits have been discovered recently. This area is located in the border zone of the Dinaric orogene belt and the internides, i.e., in the axial part of the Alpine orogene of this area of Balcan Peninsula.

The general geology is relatively simple and the main formations are paleozoic and lower paleozoic crystaline schists, tertiary volcanites and tertiary sediments.

The volcanites cover an area of more than 1500 km^2 and are connected with a large, deep fault zone, located near the bordering area. This zone is in the north also marked by the similar volcanic complexes.

The structure has been formed under the influence of a disjunctive system, created during a number of phases of Alpine orogenesis. The fault zone extends basicaly to NNW-SSE /N-S/ and ENE-WSW /E-W/, with very steep, almost vertical dips. The first system is a dominant one and represents the basic structural element of this part of Alpine orogene. The basic network of the intersections of these dislocations is between few hundred meters up to two kilometers, and the width of the tectonic zones along the main structures amounts

up to and more than 100 meters.

Multiphase volcanic eruptions produced several rock types: amphibole-biotite andesites and their agglomerated tuffs, the ignimbrites of dacitic and quartz-latitic origin, dacitic stratified tuffs, amphibole-biotite andesites and quartz-latites and labradorite augite andesites and associated tuffs. The greatest area is covered by the ignimbrites of dacitic and quartz-latitic origin.

The mineral and ore occurences are connected to the fault and tectonic zones. The uranium mineralization could be divided into two types, as an independent mineralization and in the connection with Pb-Zn mineralization.

The characteristic representative of the first type is the Zletovska Reka deposit, discovered by the middle of 1962. The deposit is located in volcanites in the vicinity of their contact with the crystaline schists of the internides. The local structures are represented by the intensively, tectonicaly and hydrothermaly, modified zones, extending E-W, 20-100 meters wide and more than 3 kilometers long. These zones represented the ore controling features.

One of these zones has been explorated about 300 meters along the strike and up to 150 meters along the dip. The uranium ore bodies are only slightly oxidized and in the lower levels are composed exclusively of the pitchblende.

The reserves in the explorated part of the zone amount about 300 000 tons of ore, with a mean uranium content of 0.15 % of U_3O_8.

The discovery of uranium in such structures and formations is of basic importance, due to the large potential possibilities of discovery of similar deposits in the younger volcanites of the Alpine orogene.